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THIS COPY FOR LUCENT

CATHY WILSON

Europäisches  
Patentamt

Zweigstelle  
in Den Haag  
Recherchen-  
abteilung

European  
Patent Office  
Branch at  
The Hague  
Search  
division

Office européen  
des brevets  
Département à  
La Haye  
Division de la  
recherche

10/030346

3010 PCT/PG 49 OCT 2001

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GRANDE BRETAGNE

Datum/Date

08.10.99

Zeichen/Ref./Réf.

X. CHEN 4

Anmeldung Nr./Application No./Demande n°/Patent Nr./Patent No./Brevet n°

99303041.0-2209-

Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire

LUCENT TECHNOLOGIES INC.

## COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

☐ Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

The following specifications given by the applicant have been approved by the Search Division:

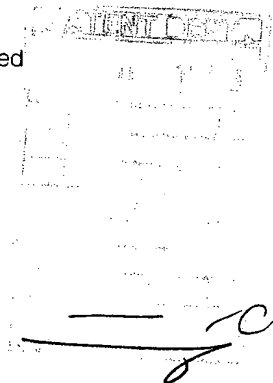
☒ abstract

☒ title

☐ The abstract was modified by the Search Division and the definitive text is attached to this communication.

The following figure will be published together with the abstract:

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## REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.





DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
A	RAJAGOPALAN B: "Mobility and quality of service (QoS) in the Internet" MOBILE MULTIMEDIA COMMUNICATIONS, PROCEEDINGS OF 3RD INTERNATIONAL WORKSHOP ON MOBILE MULTIMEDIA COMMUNICATIONS, PRINCETON, NJ, USA, 25-27 SEPT. 1996, pages 129-135, XP002114826 1997, New York, NY, USA, Plenum, USA ISBN: 0-306-45772-5 * page 130, paragraph 3 - page 131, paragraph 2 * * page 133, paragraph 4 - paragraph 5 * ----	1-14	H04L29/06 H04L12/56
A	SINGH R ET AL: "RAT: a quick (and dirty?) push for mobility support" PROCEEDINGS WMCSA'99. SECOND IEEE WORKSHOP ON MOBILE COMPUTING SYSTEMS AND APPLICATIONS, PROCEEDINGS OF WMCSA99: 2ND IEEE WORKSHOP ON MOBILE COMPUTING SYSTEMS AND APPLICATIONS, NEW ORLEANS, LA, USA, 25-26 FEB. 1999, pages 32-40, XP002115363 1999, Los Alamitos, CA, USA, IEEE Comput. Soc, USA ISBN: 0-7695-0025-0 * page 32, left-hand column, paragraph 5 - page 33, right-hand column, paragraph 4 * * page 37, right-hand column, paragraph 6 - page 38, left-hand column, paragraph 5 * ----	1-4, 7-10, 12-14	TECHNICAL FIELDS SEARCHED (Int.Cl.7) H04L
A	YEOM H Y ET AL: "IP MULTIPLEXING BY TRANSPARENT PORT-ADDRESS TRANSLATOR" PROCEEDINGS OF THE SYSTEMS ADMINISTRATION CONFERENCE. LISA, 29 September 1996 (1996-09-29), pages 113-121, XP002046289 * page 115, right-hand column, paragraph 2 - page 116, left-hand column, paragraph 3 * -----	1,5,6,9	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 1 October 1999	Examiner RAMIREZ DE AREL..., F
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
US Department of Commerce  
United States Patent and Trademark  
Office, PCT  
2011 South Clark Place Room  
CP2/5C24  
Arlington, VA 22202  
ETATS-UNIS D'AMERIQUE  
in its capacity as elected Office

Date of mailing (day/month/year) 16 November 2000 (16.11.00)	
International application No. PCT/GB00/00827	Applicant's or agent's file reference X.CHEN 4
International filing date (day/month/year) 07 March 2000 (07.03.00)	Priority date (day/month/year) 20 April 1999 (20.04.99)
Applicant CHEN, Xiaobao	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
16 September 2000 (16.09.00)

☐ in a notice effecting later election filed with the International Bureau on:  
\_\_\_\_\_

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer S. Mafla Telephone No.: (41-22) 338.83.38
---	--

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>X. CHEN 4</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB 00/ 00827</b>	International filing date (day/month/year) <b>07/03/2000</b>	(Earliest) Priority Date (day/month/year) <b>20/04/1999</b>
Applicant <b>LUCENT TECHNOLOGIES INC. et al.</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 3 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

## 1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

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☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

International Application No

PCT/00/00827

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H04L29/06 H04L12/56

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ, INSPEC

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	RAJAGOPALAN B: "Mobility and quality of service (QoS) in the Internet" MOBILE MULTIMEDIA COMMUNICATIONS, PROCEEDINGS OF 3RD INTERNATIONAL WORKSHOP ON MOBILE MULTIMEDIA COMMUNICATIONS, PRINCETON, NJ, USA, 25-27 SEPT. 1996, pages 129-135, XP002114826 1997, New York, NY, USA, Plenum, USA ISBN: 0-306-45772-5 page 130, paragraph 3 -page 131, paragraph 2 page 133, paragraph 4 - paragraph 5 --- -/--	1-14



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&amp;" document member of the same patent family

Date of the actual completion of the international search

7 July 2000

Date of mailing of the international search report

20/07/2000

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

RAMIREZ DE AREL..., F

## INTERNATIONAL SEARCH REPORT

International Application No

PCT 00/00827

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>SINGH R ET AL: "RAT: a quick (and dirty?) push for mobility support" PROCEEDINGS WMCSA'99. SECOND IEEE WORKSHOP ON MOBILE COMPUTING SYSTEMS AND APPLICATIONS, PROCEEDINGS OF WMCSA99: 2ND IEEE WORKSHOP ON MOBILE COMPUTING SYSTEMS AND APPLICATIONS, NEW ORLEANS, LA, USA, 25-26 FEB. 1999, pages 32-40, XP002115363 1999, Los Alamitos, CA, USA, IEEE Comput. Soc, USA ISBN: 0-7695-0025-0 page 32, left-hand column, paragraph 5 -page 33, right-hand column, paragraph 4 page 37, right-hand column, paragraph 6 -page 38, left-hand column, paragraph 5 ---</p>	<p>1-4, 7-10, 12-14</p>
A	<p>YEOM H Y ET AL: "IP MULTIPLEXING BY TRANSPARENT PORT-ADDRESS TRANSLATOR" PROCEEDINGS OF THE SYSTEMS ADMINISTRATION CONFERENCE. LISA, 29 September 1996 (1996-09-29), pages 113-121, XP002046289 page 115, right-hand column, paragraph 2 -page 116, left-hand column, paragraph 3 -----</p>	<p>1,5,6,9</p>

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AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
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CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						



INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

7


Applicant's or agent's file reference X.CHEN 4	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/GB00/00827	International filing date (day/month/year) 07/03/2000	Priority date (day/month/year) 20/04/1999
International Patent Classification (IPC) or national classification and IPC H04L29/06		
Applicant LUCENT TECHNOLOGIES INC. et al.		

- This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 7 sheets, including this cover sheet.
  - ☐ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand  16/09/2000	Date of completion of this report  16.05.2001
Name and mailing address of the international preliminary examining authority:   European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized officer  Jimenez Hernandez, P  Telephone No. +49 89 2399 7938



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/00827

## I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

**Description, pages:**

1-35 as originally filed

**Claims, No.:**

1-14 as originally filed

**Drawings, sheets:**

1/17-17/17 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
- ☐ the claims, Nos.:

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/00827

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

*(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)*

6. Additional observations, if necessary:

### III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application.

☒ claims Nos. 9-14.

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 9-14 are so unclear that no meaningful opinion could be formed (*specify*):  
**see separate sheet**

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the said claims Nos. .

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

### V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)

Yes: Claims 1-8

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/GB00/00827

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	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-8
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-8
	No:	Claims	

2. Citations and explanations  
**see separate sheet**

## VII. Certain defects in the international application

The following defects in the form or contents of the international application have been noted:  
**see separate sheet**

**Re Item III**

**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

Claims 9-14 seek protection for a mobile IP environment defined by method steps. The term "environment" together with the method steps in claims 9-14 render both the matter for which protection is sought and its category unclear. In particular, the term "environment" does not allow to determine whether protection is sought for a network or a node.

**Re Item V**

**Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. The subject-matter of claim 1 meets the requirements of Art. 33(2), (3) PCT.

1.1 Claim 1 relates to a method of establishing an Internet Protocol (IP) quality of service (QoS) session between a correspondent node and a mobile node in a Mobile-IP environment.

**D1= RAJAGOPALAN B: 'Mobility and quality of service (QoS) in the Internet' MOBILE MULTIMEDIA COMMUNICATIONS, PROCEEDINGS OF 3RD INTERNATIONAL WORKSHOP ON MOBILE MULTIMEDIA COMMUNICATIONS, PRINCETON, NJ, USA, 25-27 SEPT. 1996, pages 129-135, XP002114826 1997, New York, NY, USA, Plenum, USA ISBN: 0-306-45772-5, which relates to a method of the same type, is considered as the closest prior art.**

D1 proposes also a method of establishing an IP QoS session between a correspondent node and a mobile node in a Mobile-IP environment. Said method consists of modifying the Mobile-IP specification in order to treat the Path/Reservation messages in a new way, i. e. encapsulation (D1, page 133, first paragraph of the point "Routing Issues"). Said messages are used to establish a QoS session as defined by the Resource Reservation Protocol (RSVP), which is the QoS signaling protocol used in the Integrated Services Model (IntServe). Path

messages carry the flow identification information of the quality of service session to be established. Therefore, the a.m. method is based on treating the QoS session establishment messages, and as a consequence the flow identification information conveyed by them, in a different way.

- 1.2 Claim 1 is distinguished from **D1** in that the method claimed for establishing a QoS session determines whether the flow identification information of a quality of service session to be configured **matches** that of any existing quality of service session, and in case of a match, **temporary flow identification information is allocated** to the new QoS session to be configured. The characterising features of matching flow identification information and assigning temporary flow identification information for the duration of the QoS session are not found in **D1**.

The objective problem is to achieve the establishment of IP QoS sessions between correspondent nodes and mobile nodes in a Mobile-IP environment without departing from the Mobile-IP specification.

- 1.3 Even if the method proposed by **D1** were sufficiently disclosed, it would lead away since it does not provide a solution for the objective problem, since a modification in the Mobile-IP specification is proposed.

Neither **D2 = SINGH R ET AL: 'RAT: a quick (and dirty?) push for mobility support' PROCEEDINGS WMCSA'99. SECOND IEEE WORKSHOP ON MOBILE COMPUTING SYSTEMS AND APPLICATIONS, PROCEEDINGS OF WMCSA99: 2ND IEEE WORKSHOP ON MOBILE COMPUTING SYSTEMS AND APPLICATIONS, NEW ORLEANS, LA, USA, 25-26 FEB. 1999, pages 32-40, XP002115363 1999, Los Alamitos, CA, USA, IEEE Comput. Soc, USA ISBN: 0-7695-0025-0** nor **D3 = YEOM H Y ET AL: 'IP MULTIPLEXING BY TRANSPARENT PORT-ADDRESS TRANSLATOR' PROCEEDINGS OF THE SYSTEMS ADMINISTRATION CONFERENCE. LISA, 29 September 1996 (1996-09-29), pages 113-121, XP002046289** disclose a method relating to the establishment of an IP QoS session, so they are not relevant to the subject-matter of claim 1.

**INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT - SEPARATE SHEET**

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International application No. PCT/GB00/00827

The dependent claims 2-8 further constrain the independent claim 1 and likewise meet the requirements of Art. 33(2), (3) PCT.

**Re Item VII**

**Certain defects in the international application**

1. The claims do not contain reference signs in parentheses, Rule 6.2(b).
2. The independent claims are not in the two-part form vis-à-vis **D1**, Rule 6.3(b).  
**D1** is regarded as the closest prior art and discloses the features of Claim 1, lines 1-9.
3. **D1** is not mentioned in the description, Rule 5.1(a)(ii).